

WHAT IS CLAIMED IS:

A 1 1. A method of queuing calls to a subscriber of queuing services  
2 accessed through a subscriber line, the method comprising:  
3 detecting a call to the subscriber line at a local switch connected to  
4 the subscriber line;  
5 if the subscriber line is busy, queuing the call to the subscriber in a  
6 intelligent peripheral, the intelligent peripheral within an Advanced Intelligent  
7 Network (AIN) telecommunications system;  
8 determining that the subscriber line is not busy; and  
9 if a call is queued in the intelligent peripheral and the subscriber line  
10 is determined to be not busy, connecting the call to the subscriber with the  
11 subscriber line.

1 2. A method of queuing calls as in claim 1 wherein detecting the  
2 call to the subscriber comprises setting a Termination Attempt Trigger against the  
3 subscriber line.

1 3. A method of queuing calls as in claim 1 wherein detecting the  
2 call to the subscriber comprises provisioning Call Forward on Busy Line on the  
3 subscriber line.

A 1 4. A method of queuing calls as in claim 1 wherein queuing the  
2 call to the subscriber comprises forwarding the subscriber line call to a Direct  
3 Inward Dial telephone number on the intelligent peripheral.

DID 1 5. A method of queuing calls as in claim 1 wherein determining  
2 that the subscriber line is not busy comprises setting a Next Event List at the  
3 subscriber local switch.

1 6. A method of queuing calls as in claim 1 wherein determining  
2 that the subscriber line is not busy comprises:

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3 provisioning Call Forward on Busy Line on the subscriber line  
4 causing the local switch to call the intelligent peripheral when the subscriber line is  
5 found to be busy in response to a call to the subscriber line;  
6 dialing the subscriber line from the intelligent peripheral; and  
7 determining that the subscriber line is busy if the local switch calls  
8 the intelligent peripheral in response to the call to the subscriber line from the  
9 intelligent peripheral.

1 7. A method of queuing calls as in claim 1 further comprising  
2 determining that the call to the subscriber has been queued for a  
3 determined amount of time;  
4 requesting that a caller placing the call to the subscriber perform an  
5 action to remain in queue; and  
6 if the caller does not perform the requested action, dequeuing the call.

1 8. A method of queuing calls as in claim 1 further comprising:  
2 receiving a plurality of calls to access the subscriber line;  
3 placing each received call in the queue associated with the subscriber  
4 line if the subscriber line is busy;  
5 collecting queue utilization information about each queued call; and  
6 generating queue utilization statistics based on the collected queue  
7 utilization information.

1 9. A method of queuing calls as in claim 1 further comprising  
2 placing a call from the intelligent peripheral indicating status of the queued  
3 subscriber line call to the subscriber.

1 10. A method of queuing calls as in claim 1 wherein the intelligent  
2 peripheral is a switchless intelligent peripheral.

11. A system for queuing subscriber calls within an Advanced Intelligent Network (AIN) telecommunications system, each subscriber call placed by a caller to a subscriber line, the system comprising:

a local switch servicing the subscriber line, the local switch including Call Forward on Busy Line functionality provisioned on the subscriber line, the Call Forward on Busy Line functionality forwarding any subscriber call received for the subscriber line when the subscriber line is busy; and

an intelligent peripheral within the AIN system operative to:

- (a) receive any forwarded subscriber call from the local switch;
- (b) if queue slots are available in the intelligent peripheral, queue the received subscriber call;
- (c) place a busy check call to the subscriber line;
- (d) drop the busy check call if the busy check call is forwarded back to the intelligent peripheral from the local switch; and
- (e) connect a queued subscriber call to the busy check call if the subscriber line is not busy.

12. A system for queuing subscriber calls as in claim 11 further comprising a service control point in communication with the intelligent peripheral, the service control point determining if queue slots are available in the intelligent peripheral.

13. A system for queuing subscriber calls as in claim 12 further comprising a messaging system, the service control point instructing the intelligent peripheral to dial the number of the messaging system and to bridge the received subscriber call to the messaging system call if the service control point determines no queue slots are available.

14. A system for queuing subscriber calls as in claim 12 wherein the service control point instructs the intelligent peripheral to play a message to the received subscriber call if the service control point determines no queue slots are available.

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1                   15.    A system for queuing subscriber calls as in claim 11 wherein  
2   the intelligent peripheral is further operative to request that the caller perform an  
3   action to remain in queue after determining that the subscriber call has been queued  
4   for a determined amount of time and, if the caller does not perform the requested  
5   action, to dequeue the call.

1                   16.    A system for queuing subscriber calls as in claim 11 further  
2   comprising:  
3                   a plurality of intelligent peripherals, each intelligent peripheral  
4   implementing at least one call queue, each call queue associated with one of a  
5   plurality of subscribers;  
6                   at least one service control point, each intelligent peripheral in  
7   communication with one service control point collecting information about each  
8   queued call; and  
9                   a data server in communication with the at least one service control  
10   point, the data server aggregating queue utilization data for each subscriber.

1                   17.    A system for queuing subscriber calls as in claim 16 further  
2   comprising at least one data distributor, each data distributor in communication with  
3   a service control point and the data server, each data distributor receiving  
4   information about each queued call from the service control point and periodically  
5   forwarding the information to the data server.

1                   18.    A system for queuing subscriber calls as in claim 16 further  
2   comprising a data publishing platform in communication with the data server, the  
3   data publishing platform aggregating subscriber queue utilization data across a  
4   plurality of report periods.

1                   19.    A system for queuing subscriber calls as in claim 11 wherein  
2   the intelligent peripheral is further operative to place a status call providing status  
3   information to the subscriber about at least one queued call.

A 1 20. A system for queuing subscriber calls as in claim 11 wherein  
2 the intelligent peripheral is a switchless intelligent peripheral.

1 21. A method for queuing subscriber calls comprising:  
2 provisioning a subscriber line with Call Forward on Busy Line  
3 functionality at a local switch servicing the subscriber line;  
4 receiving a subscriber call destined for the subscriber line at the local  
5 switch;  
6 if the subscriber line is busy, forwarding the received call to a Direct  
7 Inward Dial telephone number on an intelligent peripheral via the Call Forward on  
8 Busy Line functionality;  
9 receiving the forwarded call at the intelligent peripheral; and  
10 queuing the forwarded call at the intelligent peripheral if the  
11 intelligent peripheral has at lease one available queue slot.

1 22. A method for queuing subscriber calls as in claim 21 further  
2 comprising calling a messaging service from the intelligent peripheral if the  
3 intelligent peripheral has no available queue slots and bridging the forwarded call  
4 with the messaging service call.

1 23. A method for queuing subscriber calls as in claim 21 further  
2 comprising playing a message from the intelligent peripheral if the intelligent  
3 peripheral has no available queue slots.

1 24. A method for queuing subscriber calls as in claim 21 further  
2 comprising playing a message from the intelligent peripheral to the forwarded call  
3 when queuing the forwarded call.

1 25. A method for queuing subscriber calls as in claim 21 further  
2 comprising:  
3 determining that the subscriber call has been queued for a determined  
4 amount of time;

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5 requesting that a caller placing the subscriber call perform an action  
6 to remain in queue; and  
7 if the caller does not perform the requested action, dequeuing the call.

1 26. A method for queuing subscriber calls as in claim 21 further  
2 comprising:  
3 receiving a plurality of subscriber calls to access the subscriber line;  
4 placing each received call in the queue associated with the subscriber  
5 line if the subscriber line is busy;  
6 collecting queue utilization information about each queued call; and  
7 generating queue utilization statistics based on the collected queue  
8 utilization information.

1 27. A method for queuing subscriber calls as in claim 21 further  
2 comprising placing a call from the intelligent peripheral indicating status of the  
3 queued subscriber call.

1 28. A method for queuing subscriber calls comprising:  
2 queuing at least one subscriber call in an intelligent peripheral;  
3 placing a busy check call from the intelligent peripheral to a  
4 subscriber line;  
5 receiving the busy check call in a local switch servicing the subscriber  
6 line;  
7 if the subscriber line is busy, forwarding the busy check call back to  
8 the intelligent peripheral through Call Forward on Busy Line functionality  
9 implemented in the local switch;  
10 disconnecting the busy check call if the intelligent peripheral receives  
11 back the forwarded busy check call; and  
12 connecting a queued subscriber call with the busy check call if the  
13 subscriber line is not busy.

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